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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,250	02/26/2002	Takahiro Hayashi	112052	3027

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EXAMINER	
PATEL, VINIT H	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,250	HAYASHI ET AL.	
	Examiner	Art Unit	
	Vinit H. Patel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on June 9, 2005 have been fully considered but they are not persuasive.

Applicant argues that Kimbara et al., US Patent No. 6,802,875 does not teach, inter alia, that Kimbara does not teach a reaction tank with a catalyst and heater, that Kimbara is not capable of forming liquid film on catalyst, or a reaction regeneration tank.

Respectfully the examiner disagrees and therefore claims 1-27 stand rejected as written. Kimbara teaches a reactor 26 with a catalyst that is heated (by a heat exchanger, i.e. a heater) to produce hydrogen gas (C6/L32-57, as previously cited at C6/L8-65 in rejecting claim 1). Furthermore, it is clear that a liquid film is formed by the liquid work piece flowing over the catalyst in reactor 26, hence Kimbara is capable of forming liquid film on the catalyst (C5/L55-C6/L57). Kimbara further teaches a hydrogenation reactor 24 and dehydrogenation reactor 26 may both contain nickel catalyst capable of either reaction C6/L8-65).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Kimbara et al., U.S. Patent No. 6,802,875.

Regarding claims 1 and 26, Kimbara discloses, a hydrogen supply system 2, having a fuel chamber 13 (storage tank) connected by pipe 15 to tank 20, having a connection through pipe 21 with pump 22, heat exchanger 23 (heater), and dehydrogenation catalyst within dehydrogenation reactor 24. A gas/liquid separator 33 (from tank 20 via recovery pipe 31), supplied by condenser 32, that separates the gases formed in the reactor 24 so that hydrogen is supplied (discharged) to the fuel cell (C6/L8-65; Fig. 1). The decahydronaphthalene and naphthalene and hydrogen gas are material worked upon by a structure being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 2, Kimbara further discloses a hydrogenation (regeneration) reactor 26 with a catalyst and heater 29 connected to gas/liquid separator via pipe 35a (C7/L25-30; Fig. 1).

Regarding claim 3, Kimbara further discloses tank 101 (storage tank) downstream the separation membrane 111 (separation apparatus) wherein only hydrogen is present in the tank 101 (C16/L24-28).

Regarding claim 4, Kimbara discloses tank 101 is connected via hydrogen supply pipe 112 to supply hydrogen to the hydrogenation reactor (C16/L24-45; Fig. 9).

Regarding claim 5, Kimbara discloses that the hydrogen is supplied from a reformation apparatus 300 (C26/L49-51).

Regarding claims 6 and 27, Kimbara discloses, a hydrogen supply system 2, having a fuel chamber 13 (storage tank) connected by pipe 15 to tank 20, having a connection through pipe 21 with pump 22, heat exchanger 23 (heater), and dehydrogenation catalyst within dehydrogenation reactor 24. A gas/liquid separator 33 (from tank 20 via recovery pipe 31), supplied by condenser 32, that separates the gases formed in the reactor 24 so that hydrogen is supplied (discharged) to the fuel cell (C6/L8-65; Fig. 1) and a hydrogenation (regeneration) reactor 26 with a catalyst and heater 29 connected to gas/liquid separator via pipe 35a (C7/L25-30; Fig. 1). The decahydronaphthalene and naphthalene and hydrogen gas are material worked upon by a structure being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 7, Kimbara further discloses tank 101 (storage tank) downstream the separation membrane 111 (separation apparatus) wherein only hydrogen is present in the tank 101 downsteam the separation membrane (C16/L24-28).

Regarding claim 8, Kimbara discloses tank 101 is connected via hydrogen supply pipe 112 to supply hydrogen to the hydrogenation reactor (C16/L24-45; Fig. 9).

Regarding claim 9, Kimbara discloses that the hydrogen is supplied from a reformation apparatus 300 (C26/L49-51).

Regarding claim 10, Kimbara discloses that unreacted gas is liquefied and recovered in tank 101 (C7/L34-35).

Regarding claim 11, Kimbara discloses that un-reacted gas (from the hydrogenation/dehydrogenation reactors) is liquefied and recovered in tank 101 (C7/L34-35).

Regarding claim 12, Kimbara discloses that un-reacted gas (from the hydrogenation/dehydrogenation reactors) is liquefied and recovered in tank 101 (storage tank) (C7/L34-35).

Regarding claim 13, Kimbara discloses that un-reacted gas (from the hydrogenation/dehydrogenation reactors) is liquefied and recovered in tank 101 (storage tank) (C16/L24-35).

Regarding claim 14, Kimbara discloses a hydrogen detection portion for detecting the amount of hydrogen gas (C7/L12-14), and control units C3 for controlling the amount of hydrogen required according to the amount of power required (C7/L10-15).

Regarding claim 15, Kimbara further discloses a hydrogen sensor 95 for detecting the amount of hydrogen gas (C13/L22-24), and control unit C9 (C13/L22-24), and controller unit C9 to drive pump 72 to supply tank 73 and fuel chamber 13 (C13/L35-39).

Regarding claim 16, Kimbara discloses a separation tank 101 (C16/L24). The material (npaththalene stored) worked upon by a structure (apparatus) being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 17, Kimbara discloses a separation tank 101 (C16/L24). The material (npaththalene stored) worked upon by a structure (apparatus) being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 18, Kimbara discloses hydrogenation reactor 117 connected to gas-liquid separator 108, which is led to tank 101 (C16/L5-65; Fig. 9). The material (tetralin and decalin generated) worked upon by a structure (apparatus) being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 19, Kimbara discloses hydrogenation reactor 117 connected to gas-liquid separator 108, which is led to tank 101 (C16/L5-65; Fig. 9). The material (tetralin and decalin generated) worked upon by a structure (apparatus) being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claims 20, Kimbara discloses a gas separation apparatus comprising separation membrane 111 and condensers 110 and 120 (a cooling device) (C17/L10-21).

Regarding claim 21, Kimbara discloses a gas separation apparatus comprising separation membrane 111 and condensers 110 and 120 (a cooling device) (C17/L10-21).

Regarding claim 22, Kimbara discloses the catalyst may be a precious metal catalyst carried on carbon such as platinum or ruthenium (C6/L34-38).

Regarding claim 23, Kimbara discloses the catalyst may be a precious metal catalyst carried on carbon such as platinum or ruthenium (C6/L34-38).

Regarding claim 24, the material (decalin and the mixed fuel) worked upon by a structure (apparatus of claim 1) being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 25, the material (decalin and the mixed fuel) worked upon by a structure (apparatus of claim 6) being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Regarding claim 28, Kimbara teaches a storage tank 13, supply means 21, a reaction tank 26 with catalyst and heater, and a separation tank 33 (Fig. 1; C5/L66 – C7/L9).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinit H. Patel whose telephone number is (571) 272-0856. The examiner can normally be reached Monday – Friday from 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached at (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VHP